3.0 AFFECTED ENVIRONMENT

This chapter describes the relevant resources of areas that would be affected by the alignment alternatives if they were implemented. This chapter establishes the baseline environmental situation against which decision makers and the public can compare the effects of all alignment alternatives. This chapter serves as the baseline for the impact analysis in Chapter 4. Aerial photos of the study area are provided on Figure 2-1, Figure 2-2, and Figure 2-3. To help the reader visualize the proposed project, the approximate right-of-way has been delineated on the photos. The Tollway Alignment Alternatives would have a slightly wider right-of-way near toll facilities.

Several technical studies were prepared for this EIS/ EIR (listed at the beginning of Chapter 4).

Within the Otay Mesa area a focused Study Corridor has been defined. Technical studies prepared for this project were focused on this corridor. The defined Study Corridor extends between I-805 and the Otay Mesa POE, and is approximately 10 kilometers (6.2 miles) long and ranges from approximately 150 to 915 meters (500 to 3000 feet) wide. Most of the direct impacts relative to project implementation and construction are expected to occur within this corridor. The information provided on existing conditions and issues within the Study Corridor is therefore more detailed than that provided for the study area as a whole.

3.1 GEOGRAPHIC SETTING AND TOPOGRAPHY

The project site is located in the southern-most portion of San Diego County, and follows the existing route of Otay Mesa Road (OMR) within the City of San Diego. The Pacific Ocean is approximately 11 kilometers (seven miles) to the west, the north-south trending San Ysidro Mountains are to the east, the Otay River Valley is to the north, and the international border with Mexico is to the south. The proposed project traverses Otay Mesa from Interstate 805 (I-805) to the Otay Mesa Point of Entry (POE). Otay Mesa has gently rolling terrain, with elevations varying from approximately 135 meters to 180 meters (450 to 550 feet) above mean sea level (AMSL). The lowest elevation is located at the western extent of the project, with nominal variation along the mesa.

Natural landmarks include two major canyons: Dennery Canyon, which drains northerly from OMR toward the Otay River; and several branches of Spring Canyon, which drain southerly from OMR. Regional access to the project site is provided by the existing western portion of Route 905, which extends from I-5 to its terminus at I-805. This current terminus marks the western beginning point of the project.

3.2 GEOLOGY

The study area is situated in the western portion of the Peninsular Ranges geomorphic province of southern California. In general, the Peninsular Ranges are underlain by Jurassic metavolcanic and metasedimentary rocks and by Cretaceous igneous rocks of the southern California batholith. The westernmost portion of the province in San Diego County consists generally of Upper Cretaceous, Tertiary, and Quaternary sedimentary rocks. Much of the mesa has been mapped as being underlain by terrace deposits, the Lindavista Formation, and the San Diego Formation/

undifferentiated. The San Diego Formation separates the Lindavista Formation from the underlying Otay Formation, which is also exposed in some areas. The project area is underlain by topsoil/colluvium, alluvium, fill, terrace deposits, and landslide/soil creep deposits. Topsoil and colluvium (mainly silty and clayey sand) cover much of the undeveloped area. Areas dominated by clays in the Otay Formation are expansive and prone to erosion and landsliding, especially on steeper slopes such as in Spring Canyon.

Several areas in the project area are underlain by undocumented fill, engineered fill from various developments, and miscellaneous debris/ unauthorized dumping sites. Undocumented soil fills occur as drainage infill, spoil piles, and berms, and were likely placed with little or no compactive effort. These soils, as well as the debris sites, are not considered suitable foundation materials in their present condition. An infilled drainage known as the "Tripp Landfill" near Cactus Road is also underlain by hazardous materials.

The project site is considered to be in a seismically active area, as is most of southern California. Although no active faults are known to transect the Study Corridor, several splays of the potentially active La Nacion fault have been mapped in the area. The Rose Canyon Fault is the nearest known active fault, 10 kilometers (six miles) away. These faults, as well as other faults in the region, have the potential for generating strong ground motions in the project area. Experts believe that the maximum credible earthquake magnitude with respect to the project would be an earthquake of magnitude 6.8 on the Richter Scale.

3.3 PALEONTOLOGY

Paleontological resources represent a limited, nonrenewable, and sensitive scientific and educational resource. High sensitivity is assigned to geologic deposits (formations) known to contain rare, well-preserved fossil materials important for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleobiology and evolutionary history of animal and plant groups. Generally speaking, high sensitivity formations produce vertebrate fossil remains or are considered to have the potential to produce such remains. High sensitivity formations recognized in the Study Corridor include the San Diego Formation and the Otay Formation. Portions of the Study Corridor are also underlain by geologic deposits that contain moderate-sensitivity paleontological resources. These resources usually include poorly preserved fossils of marine invertebrates and rare fossil remains of terrestrial mammals in the Pleistocene-aged (1-2 million years old) Lindavista Formation.

Direct impacts to paleontological resources occur when earthwork activities, such as mass grading operations, cut into the geological deposits (formations) within which fossils are buried. These direct impacts are in the form of physical destruction of fossil remains. Since fossils are the remains of prehistoric animal and plant life, they are nonrenewable resources.

3.4 HYDROLOGY/DRAINAGE

The majority of the project area is composed of a series of smooth terraces known as mesas. These mesas are relatively flat, however, their general slope along the project corridor is from north to south. Drainage generated from area basins and sub-basins, therefore flows predominantly from north to south, crossing Otay Mesa Road in numerous existing culverts. Runoff is conveyed in natural swales and channels with some overland flow, street flow and

stormdrain flow. A major factor affecting runoff is the potential for soil infiltration. The soils in the project area have a high clay content with low infiltration, which is conducive to high runoff potential. Drainage south of Otay Mesa Road is carried mostly within steep canyons and gullies, particularly west of Brittania Road. This areas drains towards the west. The annual rainfall is approximately 280 millimeters (11 inches).

3.5 WATER QUALITY AND GROUNDWATER

The Study Corridor is located almost entirely within the Tijuana Hydrologic Unit, one of eleven designated units used for water quality planning within the San Diego Basin. Drainage is through the Tijuana River and its associated tributaries, including a number of canyons (e.g., Spring Canyon) and unnamed ephemeral creeks trending west and south. Surface water within the Study Corridor consists predominantly of intermittent runoff associated with storm events and (to a lesser degree) irrigation. The project would not cross any permanently flowing creeks (creeks with year-round water flow), but it would cross the Otay Mesa Floodplain.

Depending on location and volume, local runoff may occur as both point and non-point flows. Point flows, as defined by the Regional Water Quality Control Board, consist of runoff within "discernible, confined, and discrete conveyances". Within the Study Corridor, point flows occur as natural drainage courses, storm drains, irrigation channels and discharge facilities (i.e., pipes or channels) associated with agricultural and industrial uses. Non-point flows consist primarily of overland runoff associated with storms and agricultural or landscape irrigation. Runoff derived from urban, agricultural and (to a lesser extent) undeveloped sources may encompass both point and non-point flows and associated contaminants.

Principal contaminants affecting existing surface water quality within the Study Corridor include eroded sediment in rural and open space areas (both disturbed and undisturbed); sediment, organic material, salts, fertilizers and pesticides in agricultural areas; and industrial discharge and storm water drainage in developed (urban) areas. A number of documented hazardous material sites are located within the Study Corridor. These sites may contribute contaminants to local surface and groundwater through mechanisms such as direct discharge, exposure to surface runoff or infiltration. Given the intermittent nature of surface waters and the presence of major upstream urban development in the corridor, existing water quality is generally poor. Water quality along the 11.3-kilometer (seven-mile) stretch of the Tijuana River is identified as impaired.

Designated beneficial uses for surface waters within the Study Corridor are agricultural, industrial service supply, contact and non-contact recreation, warm freshwater aquatic habitat, and wildlife (terrestrial) habitat. Tijuana River beneficial uses also include rare, threatened or endangered species; this river is however beyond the Study Corridor.

Groundwater from wells within the Study Corridor shows high sodium chloride and Total Dissolved Solids (TDS) levels and poor overall quality. Principal contaminants affecting existing groundwater quality in the project vicinity include chloride from seawater intrusion and release of dissolved salts from Tertiary marine sediments, organic material from septic system use, and dissolved solids and chemicals from infiltration of urban and agricultural runoff. Potential beneficial uses for groundwaters include municipal and domestic supply, agricultural supply, and industrial service supply.

3.6 LAND USE, SOCIAL AND ECONOMIC

This section describes the existing and planned land use, agriculture, social and economic character, and growth dynamics of the Otay Mesa area. This section inventories current human use patterns within the area which would be affected by the proposed project.

3.6.1 Land Use

The land use study area extends from the vicinity of I-805 to the San Ysidro Mountains (west to east), and from the Otay River Valley to the international border (north to south).

Jurisdictions

The first subsection identifies local planning agencies which administer public uses within the Study Corridor and which have jurisdiction over land use planning and development approvals. The second subsection addresses public and private land ownership within the Study Corridor.

Planning Jurisdictions

Jurisdictional agencies in the wider study area include the City of San Diego, County of San Diego, City of Chula Vista, and the City of Tijuana, Mexico. The majority of the Study Corridor falls within the City of San Diego's jurisdiction. The County of San Diego's planning jurisdiction is limited to the easternmost portion of the Study Corridor, and is generally east of Sanyo Avenue and Enrico Fermi Drive. Figure 3-1 provides identification of the Planning Areas Boundaries. The City of Chula Vista is located approximately 0.3 kilometer (0.2 mile) north of the northernmost edge of the Study Corridor. The City of Tijuana is located to the south across the international border. The Study Corridor does not include any portion of either the City of Chula Vista or the City of Tijuana.

Ownership

State and Federal Lands

There are no state or federal lands located within the Study Corridor. Although not strictly land owners, state and federal agencies with jurisdiction over or within properties include the U.S. Customs, Immigration and Naturalization Service, Border Patrol, and the International Boundary and Water Commission.

Special Districts

Several public service/utility agencies have facilities in the area over which they may have easement, right-of-way, or other public facilities and services jurisdiction. The Study Corridor is located within the San Ysidro Elementary School District and the Sweetwater Union High School District. Although there are no schools currently located within the Study Corridor, there are plans for future schools. Planned school locations are shown on Figure 3-6. The Otay Water District owns a 4.0 hectare (9.84 acre) parcel south of Airway Road and west of Harvest Road. The majority of this parcel is located within the Study Corridor. A 0.8 hectare (2.07 acre) parcel located within the Study Corridor east of Harvest Road and south of Otay Mesa Road is owned by SDG&E. Pacific Bell owns a 0.3 hectare (0.7 acre) parcel within the Study Corridor located

south of Camino Maquiladora and west of Cactus Road. Figure 3-2 provides a map showing the Special District Boundaries within the Study Corridor.

Private Lands

Most land in the project area is privately owned. These parcels vary in size from small, approximately 8.0 hectares (20 acres), to the very large, approximately 9,270 hectares (22,900 acres). Many of these parcels are developed and others are proposed for development with residential, commercial, and industrial uses. The development plans for parcels within the Study Corridor consist mainly of commercial and industrial developments and have been proposed in compliance with the adopted planning documents for the area. Planned development areas are shown on Figure 4-7, Figure 4-8, and Figure 4-9.

3.6.2 Planning Policy Documents

Three programs unrelated to specific jurisdiction, which provide standards and objectives relevant to the project Study Corridor include the SANDAG RTP, NCCP, and the MSCP.

Regional Transportation Plan 2020 (RTP)

The RTP identifies facilities, services and programs necessary to meet travel needs through the year 2020. The RTP includes a Revenue Constrained Plan of facilities and programs which would best maintain mobility in the region if the funding levels for transportation do not increase before 2020. The RTP identifies the existing Otay Mesa Road as the only major road on the mesa, and that this road must accommodate local residential and commercial travel as well as passenger and commercial border crossing traffic. The Highway Element of the RTP calls for the completion of Route 905 from I-805 to the Otay Mesa POE by 2020 in order to accommodate the forecasted daily traffic volumes. The increase in traffic volumes is related to anticipated growth on the mesa and increases in border crossing activity. The 2020 RTP identifies Route 905 as a six-lane freeway, which will provide congestion and heavy-vehicle relief to Otay Mesa Road.

Natural Community Conservation Plan (NCCP)

The NCCP was initiated by the USFWS and the California Department of Fish and Game (CDFG) in 1991, following legislation which authorized preparation and approval of conservation plans for plant communities and wildlife. The goal of the NCCP program is to preserve local and regional biological diversity, reconcile urban development and wildlife needs, and meet the objectives of both the state and federal Endangered Species Acts. The NCCP program has developed a planning process and a set of biological conservation guidelines to facilitate the establishment of biologically defensible multiple species preserves.

Multiple Species Conservation Program (MSCP)

The MSCP is a comprehensive habitat conservation planning program that addresses multiple species habitat needs and the preservation of native vegetation communities. The MSCP is a subarea of the NCCP. The MSCP creates a preserve system to replace the previous approach of using fragmented project-by-project biological mitigation areas, which by themselves do not contribute adequately to the continued existence of sensitive species, or to maintenance of natural bio-diversity. Within the Study Corridor, the City of San Diego MSCP maps show

preserve areas associated with the Mesa and the Spring Canyon habitat complex south of Otay Mesa Road. The preserve areas identified are part of the Multi-Habitat Planning Area, a subarea of the MSCP. The MSCP/ MHPA preserve boundary within the Study Corridor is shown on Figure 4-18A, Figure 4-18B, Figure 4-19A, and Figure 4-19B. A canyon to the west of the existing north-south trending portion of Old Otay Mesa Road is also included as part of the MSCP preserve area. The MSCP/ MHPA maps also show a corridor linkage area extending north from the Spring Canyon complex across Otay Mesa Road toward Dennery Canyon.

3.6.3 General and Community Plans

This planned land use discussion provides a brief description of the following plans which address the Otay Mesa region:

- City of San Diego Progress Guide and General Plan (1989, amended 1990)
- City of San Diego Otay Mesa Community Plan (1981, map 1997)
- County of San Diego General Plan Land Use Element (1994)
- County of San Diego Otay Subregional Plan (1993)
- County of San Diego East Otay Mesa Specific Plan (1994)
- City of Chula Vista General Plan (1995)
- Ciudad de Tijuana Plan de Desarrollo Municipal (1993-1995)
- Ciudad de Tijuana Programa de Desarrollo Urbano del Centro de Poblacion (1994)

City of San Diego

Progress Guide and General Plan

The City of San Diego *Progress Guide and General Plan* (1989) shows multiple planning categories for the study area. Within the boundaries of the focused Route 905 Study Corridor, planned uses include residential and attendant community services, community and regional centers, office and specialized commercial and general industrial uses planned for the majority of the Study Corridor south of Otay Mesa Road. A 1990 amendment to the plan shows the entire mesa area as planned urbanization, and shows areas both east and north of the plan to the City of Chula Vista/ Rancho Otay boundary as prospective annexation area. This area encompasses the portion of the Study Corridor that is currently under County jurisdiction. The existing land uses in relation to the project impact footprints are provided in Chapter 4 and shown on Figure 4-2, Figure 4-3, Figure 4-4, Figure 4-5 and Figure 4-6.

Otay Mesa Community Plan

The Otay Mesa Community Plan (1981, updated map 1997 incorporating MSCP) is a primary planning document for the Route 905 Study Corridor (Figure 3-3). Goals and objectives set forth in the plan were intended to guide public and private development in the area through the year 2000. The policies and long-term planning reflected in the document are current and are expected to remain so. The plan shows development, which is generally very close to that shown in the City of San Diego General Plan summarized above. Large blocks of industrial use are shown west, south and east of Brown Field.

The transportation discussion within the plan includes conclusions by both Caltrans and SANDAG that development of a state route to an Otay Mesa border crossing would be required, based on lack of capacity at the San Ysidro POE, and regardless of future development on Otay Mesa. In addition, the residential and associated development noted above, as well as planned industrial development on the mesa, require an overall upgrade of roads which are generally rural or unimproved in nature.

County of San Diego

San Diego County General Plan

County lands in the Otay Mesa region are generally located east of the City of San Diego and the City of Chula Vista, and are specifically addressed within the Otay Subregional Plan (1993) and the subsequent East Otay Mesa Specific Plan (1994).

Otay Subregional Plan of the San Diego County General Plan

The 1993 Subregional Plan recognizes the value of the border area and provides goals related to land use, public services and facilities, circulation, conservation, coordination and implementation. Otay Mesa represents an unusual opportunity to plan a major regional and international industrial center in a comprehensive manner and that the mesa should be treated as a single planning and development unit for which industrial design criteria should be developed.

East Otay Mesa Specific Plan

This specific plan, adopted in July 1994, implements the policies of the County General Plan, including the Otay Subregional Plan (Please see Figure 3-4). A general plan amendment was processed concurrently with the adoption of the specific plan which changed the road alignments shown in the circulation element and the land uses identified on the Otay Subregional Plan to conform with the adopted specific plan. Planned uses for the portion of the plan area within the Study Corridor are identified as regional commercial and mixed industrial.

City of Chula Vista

Chula Vista General Plan

The 1995 Chula Vista General Plan designates planned land uses for the City, located approximately 1.6 kilometers (1.0 mile) north of the I-805/Route 905 interchange. The General Plan was amended to reflect uses proposed as part of The 1993 Otay Ranch General Development Plan. Previously within the City's sphere of influence, this area was annexed in early 1997.

City of Tijuana

Ciudad de Tijuana Plan de Desarrollo Municipal (1993-1995)

This is the general planning document for the City of Tijuana. Its purpose is to establish fundamental objectives and strategies guiding the City's development for the near future. It is largely superseded by the more specific document discussed below.

Ciudad de Tijuana Programa de Desarrollo Urbano del Centro de Poblacion (1994)

This document addresses land uses within the City of Tijuana. The Otay Mesa Sector, located south of and adjacent to the Otay Mesa POE is experiencing rapid growth; the Tijuana population was expected to reach 2,736,325 in 1999 and grow to 4,850,022 by 2013. As a result of this growth, Tijuana has experienced occasional breakdowns in its ability to maintain infrastructure and transportation services at functioning levels. Planned development in the Otay Mesa Sector includes expansion of the airport road to the east and west, widening of the main thoroughfares, and the development of a light rail system to alleviate stress on the existing, overburdened transportation facilities.

3.6.4 Existing Land Uses

The existing land uses within the Study Corridor consist primarily of light industrial, businesses, agriculture and open space. Other uses, while divergent in nature (residential, public utility, commercial), comprise a much smaller percentage of Study Corridor land uses. Table 3-1 provides the number of hectares (acres) of existing land uses within the Study Corridor. Figure 4-2, Figure 4-3, Figure 4-4, Figure 4-5 and Figure 4-6 show the existing land uses listed below.

Table 3-1
STUDY CORRIDOR EXISTING LAND USES

Land Use	**Hectares**	**Acres**
Light Industrial	83.5	206.3
Commercial	8.3	20.4
Mixed Commercial and Light Industrial	4.0	9.9
Airport	36.9	91.3
Mixed Use	8.2	20.3
Residential	5.2	12.8
Agricultural	128.5	317.5
Graded and Developing	63.5	156.7
Roadways	144.8	357.8
Public Utilities	5.0	12.5
Total	487.9	1,205.6

The Otay Mesa POE, located immediately adjacent to the southern-most portion of the Study Corridor, is a major land use on the mesa and is a primary focal point for much of the existing and planned development within the corridor. Industrial uses related to vehicle sales, storage, service, and/or wrecking are located west of Heritage Road, south of Gateway Park Road, and along Cactus Road. In addition, several graded areas with existing paved access roads are currently in various stages of industrial development. The Study Corridor contains large areas in agricultural production. These areas are comprised of three large tracts of land in the western,

central, and eastern portions of the Study Corridor, with intervening development and vacant land.

The only potentially identified institutional use within the Study Corridor is a home-based church located on Cactus Road (Chapel of Good News). No existing public school properties are located within the Study Corridor. Figure 3-6 identifies possible future locations of public schools in relation to the Study Corridor. Public service facilities within the Study Corridor include the City of San Diego's Otay Mesa Fire Station No. 43, and SDG&E substation in the eastern portion of the corridor, an Otay Water District storage yard, and an abandoned City of San Diego sewage treatment plant. An unauthorized dumping site extends westerly from Heritage Road into the Spring Canyon Complex. The site is posted as containing hazardous waste and has been litigated (remediation alternatives are being evaluated by the County Department of Environmental Health). A number of vacant areas are present, including several natural canyons (e.g. portions of Spring and Dennery canyons, as well as the Otay River Valley) and a number of disturbed areas which may have been previously used for agriculture.

Agriculture

Agriculture is San Diego's fourth largest industry in terms of total dollars to the economy, behind manufacturing, defense and the visitor industry. The total 1996 value of crops produced in the region climbed 6 percent over 1995, to just over $1.1 billion. Agriculture on Otay Mesa dates back to before the turn of the century. As many as 28 families lived on the mesa at that time. Since the early 1980s, the amount of land in agricultural production has declined steadily due to rising production costs (primarily labor and water), competition from operations in Mexico, and the gradual conversion of agricultural land to industrial land.

Form AD 1006, a farmland determination for the proposed project from the Natural Resources Conservation Service, appears in Appendix F. The corridor's soils include areas designated as prime farmland, farmland of statewide importance, and farmland of local importance (Figure 3-5). However, it should be noted that prime farmland, as defined in the Final Rule of the Farmland Protection Policy Act, does not include land currently in or committed to urban development or water storage. The Otay Mesa Community Plan and East Otay Mesa Specific Plan call for the conversion of agricultural uses to urbanized uses, with agricultural use considered as an interim use.

3.6.5 Community Boundaries

The primary consideration in neighborhood identification is the amount of interaction within and between areas. Neighborhoods and communities can also be defined by housing type and/or planned development patterns. The amount of change introduced into a neighborhood by a project would be a function of both the type of impacts incurred and the neighborhood's existing characteristics. The urban element of a proposed large highway facility causes different effects to a rural community than to an urban community.

Otay Mesa is predominantly undeveloped. Residential development in the area is primarily rural and scattered. Residential housing is separate from dense residential development west of I-805 and south of the international border. Natural borders exist on its eastern and northern fringes, including the San Ysidro Mountains and Otay River Valley respectively. The mesa is currently in the process of transformation to a more urbanized area, complete with large scale industrial development, supporting commercial uses, and master-planned residential developments. Figure

3-6 identifies the existing community facilities for Otay Mesa. Otay Mesa is more rural in character than the region as a whole. The 1990 Census showed that 47% of the population in the Otay Mesa Census Tract (Figure 3-7) resided on properties of 0.4 hectare (one acre) or more, again indicating the rather rural nature of the Otay Mesa region.

3.6.6 Housing and Population Characteristics

The Otay Mesa area differs markedly from the San Diego region from a social and demographic perspective. The Socioeconomic Technical Study Report provides a demographic profile and comparison between the Otay Mesa area (Census Tract 100.07) and San Diego County. The Otay Mesa area had a total population of 5,173 persons in 1990, of which 4,049 persons were inmates at the Otay Mesa prison. The household population is limited to 1,123 persons. Most residents within Otay Mesa live in the southwestern portion of the tract, very few residences are located within the project Study Corridor.

Residents of Otay Mesa showed a larger number of persons per household and substantially higher proportion of minorities compared to the region. Residents were substantially younger on average compared to County residents, and the residents of working age (16-64) included a higher proportion of people with a mobility limitation or work disability. The population exhibited a much higher incidence of unemployment and of persons below the poverty level. Residents were more likely to be employed in agriculture and blue collar occupations, relative to County-wide residents.

Housing in the Otay Mesa area consisted of 293 total units in 1990, which were mostly renter-occupied. The residential area of potential direct impact for the proposed project consists of a cluster of five dwelling units, primarily single family homes, on three parcels. These dwelling units are located on the west side of Cactus Road, south of Otay Mesa Road. The homes of potential impact are not part of any specific neighborhood, as housing on the mesa is dispersed. There are no unique neighborhoods formed or distinguished by proximity to community facilities, community interaction, or the location of commercial services. The commercial districts in Otay Mesa are new, primarily serving pass-through traffic or industrial users.

3.6.7 Circulation and Access

Regional north-south access to the Otay Mesa area is provided by I-5 and I-805. East-west access is via Route 905 and Otay Mesa Road. In the vicinity of Brown Field, Otay Mesa Road is crossed by several primary north-south streets, including (from west to east) Heritage Road, Cactus Road, Britannia Road, and La Media Road. There are two main east-west streets paralleling Otay Mesa Road (Airway Road and Siempre Viva Road). A map of the existing transportation facilities in the project area is provided on Figure 3-8.

The area's major access route, Otay Mesa Road, is operating at a Level of Service (LOS) "E" and "F" near and including the intersections of Britannia Boulevard and Heritage Road. All other segments of Otay Mesa Road are operating at LOS "D" or better. These LOS designations are projected to remain at LOS "E" from Heritage Road to Britannia Boulevard and change to LOS "C/D" from Heritage Road west, with the widening of Otay Mesa Road from four to six lanes. The residents of Otay Mesa are subject to traffic conditions dominated by trips to and from the POE. As such, the residents have extreme constraints to their mobility when traveling in and out of Otay Mesa.

3.6.8 Development Plans and Proposals

There are major development proposals for Otay Mesa, which include large land ownership areas. Figure 4-7, Figure 4-8, and Figure 4-9 identify the planned development areas within the Study Corridor. Currently approved development for the Otay Mesa subregion includes the Brown Field Airport Master Plan, California Terraces Precise Plan (Figure 3-9), Santee Investments Precise Plan (Figure 3-10), Otay International Center Precise Plan (Figure 3-11), Otay Ranch General Development Plan/Subregional Plan, and the Border Business Park. The California Terraces and Santee Investments Precise Plans include approximately 4,700 housing units. The Otay International Center has roughly 142 hectares (350 acres) of industrial/business park-land planned and roughly 20 hectares (50 Acres) of planned commercial uses. Other major development proposals within Otay Mesa include 25 tentative and/or final maps submitted for this area. The development plans are discussed in detail in Chapter 4 (Section 4.6.5) Appendix C provides a list of approved development plans and proposals.

It is assumed that development will proceed as market needs dictate, through buildout. The Development Plans, Precise Plans and Master Plans Associated with each of these development proposals are discussed in detail within the Socioeconomic Technical Report.

3.6.9 Growth Conditions and Management Policies

Growth in the San Diego region is frequently a contentious issue on many different fronts. The current position of SANDAG, the San Diego region's primary regional planning organization, is that current regional growth trends will result in use of all land currently zoned residential by 2005 (San Diego Daily Transcript, April 1, 1997). SANDAG has projected that 3.8 million people will be living in the region by 2015 (an additional one million persons over 1995 levels).

County of San Diego

In November of 1988, Proposition C was approved by voters, sanctioning a regional approach to growth management. Proposition C was the product of the County and SANDAG's Regional Growth and Planning Review Task Force. The County Department of Planning and Land Use utilizes the Regional Growth Management Plan to evaluate the growth-inducing effects of projects. The purpose of such reviews is to make sure that growth does not occur without the facilities and services to serve such development.

Another growth management tool at the County level is the Resource Protection Ordinance, adopted by the County Board of Supervisors in May, 1989. This ordinance contains development restrictions designed to protect wetlands, floodplains, hillsides, canyons and lands of biological or historical importance. It is designed not to restrict development per se, but to minimize the disruption to the environment from development.

City of San Diego

In August 1990, the San Diego City Council adopted the Progress Guide and General Plan, a 20-year plan regulating the pace of future growth. This plan ties the approval of new residential and commercial development to the availability of adequate transportation and other infrastructure facilities.

SANDAG Regional Growth Management Strategy

In February 1992, SANDAG released the Revised Draft Regional Growth Management Strategy (RGMS). The Strategy sets standards and objectives for nine environmental and economic factors: air quality, transportation system and demand management, water, sewage treatment, sensitive lands preservation and open space protection, solid waste management, hazardous waste management, housing, and economic prosperity.

State-Wide Growth Management

In January 1993, the Council released a final report entitled "Strategic Growth: Taking Charge of the Future - A Blueprint for California". This document provides recommendations in the areas of infrastructure, housing, integration and coordination of state planning, local comprehensive plans, CEQA reform, permit streamlining, new and reformed councils of government, Office of Planning and Research assistance, rural development, water, congestion management planning, air quality and environmental reforms, and agricultural protection. Each of the growth policies described above have been implemented not to forestall growth, but to ensure that growth occurs in a planned manner, with the primary goals of protecting important natural resources and ensuring that adequate infrastructure accommodates growth.

3.6.10 Economic Resources

The San Diego region has emerged from a recession. An economic recovery began in 1993, and it is expected that the region will evolve as less dependent on its more traditional industries, diversifying into high-technology industries (primarily biotechnology and telecommunications), trade and tourism, and becoming economically stronger as a result.

One significant source of economic growth in the region relates to international trade. In 1995 (the most current year for which trade statistics are available), the value of all international trade moving in and out of San Diego was $15 billion. This was up 15% over 1994, when international trade was valued at $13 billion. International trade is forecast to be a leading economic sector in the region throughout the 1990's and beyond. The bulk of the activity is related to burgeoning trade with Mexico and the Pacific Rim. Mexico is San Diego's primary trading partner; $3.0 billion is exported annually from San Diego to Mexico, which is over 40% of San Diego's total exports. These economic factors demonstrate the importance of improving transportation facilities within the Otay Mesa region.

Market Demand and the Otay Mesa Subregion

The Otay Mesa area is a major subregion in San Diego County, slated for large scale industrial development, supporting commercial use, and new residential tracts. It was one of the most productive agricultural areas in the region, but is being transformed in the face of rising agricultural costs (primarily water) and large-scale master planning of urban development. A primary defining feature of Otay Mesa is the POE, which has been operating since 1986. It has taken over all commercial truck traffic for the San Diego -Tijuana border, which was handled at San Ysidro until January of 1995. More than two-thirds of all truck traffic between California and Mexico now uses the Otay Mesa POE.

The commercial border crossing and planned construction of Routes 905 and 125 South makes this area ripe for cross-border trade and other related development. It is anticipated that both

population and employment growth will increase substantially in Otay Mesa (as indicated by projections for the 100.07 Census Tract). Between 1990 and 2015, population is projected to increase from 1,123 to 82,330 persons, growing at an average annual rate of roughly 19%. Total employment is projected to increase from 7,138 to 48,875, increasing at an average annual rate of 8% over the 25-year period. Otay Mesa will clearly become an important economic force within the region over the next few decades.

3.7 VISUAL QUALITY

The western two-thirds of Otay Mesa is a true mesa, which consists of a virtually flat-elevated area bounded by steep cliffs on one or more sides. The eastern one-third is characterized by low rolling hills that increase in elevation to the east and transition into the San Ysidro Mountains. To the north, the slopes of the Otay River Valley are steep. Several major canyons (e.g. O'Neal, Spring and Moody), penetrate deeply into Otay Mesa and comprise the principal local drainage system. Three visual character units are identified in the Study Corridor: Mesa Edge, Mesa Top and Urban.

The mesa top has been heavily disturbed by agricultural and commercial/industrial uses. Development has been inconsistent by location and is spread out in a number of various locations. A variety of structures are scattered throughout the area, none of which would be considered architectural assets. Landscape treatments are generally non-existent, except along the newer industrial developments located east of Britannia Boulevard. Most of the open space within this area is grassland and farmland with very little variation in landform or vegetation cover. The existing visual quality based on physical character is low.

The western edge of Otay Mesa contains steep slopes and deeply cut canyons that are highly visible because of their uplifted aspect. Native vegetation (mostly sage scrub) covers these canyons. A eucalyptus grove occurs in one of these canyons. The physical characteristics of the mesa edge are more interesting and diverse than the mesa top, however because of the disturbance and adjacent character the visual quality is considered low. The urban unit is extensively developed and is located at the eastern end of the project area near the POE. Although the landform is similar to the mesa top, existing development and landscape treatments are of a higher visual quality.

The proposed project would be viewed by motorists and people in commercial/industrial establishments, viewers from the airport and farmlands and the few homes on the Mesa. The following five views within the project area are prominent:

1. North and southbound viewers from Interstate 805 have a view of the existing mesa edge. Changes to hillsides north and south of Route 905 would be highly visible.
2. At the crest of the hill where existing Route 905 currently meets Otay Mesa Road, westbound viewers have expansive views to the ocean and San Diego Bay including Imperial Beach, Coronado and Point Loma.
3. At the crest of the hill (and along a large portion of Otay Mesa Road) where existing Route 905 currently meets Otay Mesa Road, eastbound viewers look across Otay Mesa to the San Miguel and Otay Mountains.
4. Northbound Route 905 drivers just north of the POE have views towards distant mountains to the north that are visually prominent and unique. Existing pastoral views in the foreground with background views of San Miguel and other coastal hills and mountains are important.

5. The "first look" at the United States is considered regionally significant to northbound Route 905 drivers just north of the POE. There are no major landforms, architectural structures or landmarks in this area, however it is a national and regionally unique gateway.

3.8 BIOLOGICAL RESOURCES

Ten types of study activities were completed: vegetation mapping, rare plant surveys, vernal pool mapping, fairy shrimp surveys, quino checkerspot surveys, federal wetland delineation, presence/absence surveys for the coastal California gnatcatcher, orange-throated whiptail and San Diego cactus wren, and coastal California gnatcatcher monitoring surveys. These surveys were conducted from 1994 to 1998 (Survey information provided in Appendix A of the Biological Technical Report). The results of Quino Checkerspot Butterfly surveys were negative (no butterflies found). All noted surveys followed established agency protocols, with additional discussion provided in applicable portions of the Biological Technical Report.

A letter was received from the USFWS dated May 18, 1999 which indicated a general list of species that may occur in the vicinity of the project. This list includes candidate, proposed, threatened or endangered species (Table 3-2 and Appendix A). The May 1999 letter contains the most current information for the project area. Please refer to Figure 4-22, Figure 4-23, Figure 4-24, Figure 4-25, Figure 4-26, Figure 4-27 and Figure 4-28 for approximate locations of species occurrence. Species that were listed in the USFWS letter, but are not likely to occur within the Study Corridor are listed within the associated letter in Appendix A. The conditions within the Study Corridor are unsuitable for these species and these species are not discussed further.

Table 3-2
FEDERALLY LISTED SPECIES
KNOWN TO OCCUR WITHIN THE STUDY CORRIDOR

Endangered
San Diego button celery
Otay Mesa mint
Riverside fairy shrimp
San Diego fairy shrimp
Threatened
Otay tarplant
Spreading navarretia
Coastal California gnatcatcher

3.8.1 Habitats

Native vegetation communities within the Study Corridor include coastal sage scrub, riparian scrub, freshwater marsh, and vernal pools. The remainder of the Study Corridor includes annual grassland, eucalyptus plantation, disturbed wetlands, unlined flood channel/streambed, open water, standing water, disturbed, developed, or agricultural areas. Please see Table 3-3 and Figure 4-17, Figure 4-18, Figure 4-19, Figure 4-20 and Figure 4-21 for a summary and location of Study Corridor communities. There is no designated critical habitat in the Study Corridor.

Table 3-3
SUMMARY OF VEGETATION COMMUNITIES
IN THE ROUTE 905 STUDY CORRIDOR

Vegetation Community	Hectares (Acres)*	
Vernal pools	0.9	(2.1)
Coastal sage scrub	48.4	(119.6)
Coastal sage scrub - disturbed	19.7	(48.6)
Freshwater marsh	0.8	(1.9)
Riparian scrub	2.0	(4.9)
Unlined flood channel/streambed	0.7	(1.6)
Disturbed wetlands	2.2	(5.5)
Open water	0.7	(1.6)
Standing water	0.04	(0.1)
Eucalyptus plantation	1.3	(3.1)
Annual grasslands	122.3	(302.1)
Agriculture	201.9	(498.8)
Disturbed area	324.8	(802.5)
Developed area	231.9	(573.1)
Total	**957.6**	**(2,365.5)**

*Areas are approximate based on GIS level of accuracy

In addition to the above vegetation communities, U.S. Army Corps of Engineers (ACOE) jurisdictional wetlands and Waters of the U.S. occur within the Study Corridor. Figure 4-29, Figure 4-30, Figure 4-31 and Figure 4-32 show existing ACOE jurisdictional areas within the Route 905 corridor, including jurisdictional linear features. Please refer to Chapter 6 regarding coordination with the resource agencies; Figure 6-5 provides a copy of a letter from ACOE. Riparian and wetland habitats (i.e., vernal pool, riparian scrub, and freshwater marsh) are under the jurisdiction of the California Department of Fish and Game (CDFG), and ACOE.

Coastal Sage Scrub

Coastal sage scrub contains a diversity of shrub species including: California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), cliff spurge (*Euphorbia misera*), jojoba (*Simmondsia chinensis*), lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), San Diego sunflower (*Viguiera laciniata*), San Diego barrel cactus (*Ferocactus viridescens*), and bladderpod (*Isomeris arborea*). Herbaceous species occur in the understory. Disturbed coastal sage scrub communities have a relatively low cover of shrub species and a higher cover of herbaceous species. Approximately 48.4 hectares (119.6 acres) of coastal sage scrub vegetation occur in the Study Corridor and are limited to the canyons. In addition, there are approximately 19.7 hectares (48.6 acres) of disturbed coastal sage scrub in the

Study Corridor, primarily on the mesa between upper tributaries of Spring and Dennery Canyons.

Riparian Scrub

Riparian scrub, a commonly referred to vegetation community in Southern California, is also a generic term for southern willow scrub and mulefat scrub communities that occur along drainages and/or riparian corridors. These habitats occur on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Common riparian species in the Study Corridor include mulefat (*Baccharis salicifolia*), arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), and cocklebur (*Xanthium strumarium*). Associated hydrophytic species include bristly ox-tongue and annual beardgrass. Approximately 2.0 hectares (4.9 acres) of riparian scrub vegetation occur in the Study Corridor.

Freshwater Marsh

Freshwater marsh areas are permanently flooded by freshwater. Dominant freshwater marsh species in the Study Corridor include broad-leaved cattail (*Typha latifolia*) and tule (*Scirpus acutus* var. *occidentalis*). Several non-native invasive species, including tamarisk (*Tamarix* sp.) and Bermuda grass (*Cynodon dactylon*), are found in the Study Corridor's freshwater marsh vegetation. Most of the freshwater marsh in the Study Corridor is concentrated in Spring Canyon and south of St. Andrews Avenue in what appears to be an artificial drainage extending east/west through the middle of the Study Corridor. Approximately 0.8 hectare (1.9 acres) of freshwater marsh occur within the Study Corridor. This includes a freshwater marsh at the northern tip of Spring Canyon that was impacted by the Otay Mesa Road widening project and is being restored.

Vernal Pools

Vernal pools are diverse, highly specialized habitats associated with a subsurface hardpan or claypan that inhibits the downward percolation of water, and a characteristic mounded topography. Plant species observed in pools within the Study Corridor included long-stalk water-starwort (*Callitriche marginata*), stonecrop (*Crassula aquatica*), spike-rush (*Eleocharis* sp.), San Diego button-celery (*Eryngium aristulatum* var. *parishii*), toad rush (*Juncus bufonius*), flowering quillwort (*Lilaea scilloides*), grass poly (*Lythrum hyssopifolium*), pill-wort (*Pilularia americana*), dwarf woolly-heads (*Psilocarphus brevissimus*), Otay Mesa mint (*Pogogyne nudiscula*), Otay tarplant (*Hemizonia conjugens*), little mousetail (*Myosurus minimus*), and spreading navarretia (*Navarretia fossalis*). The highest diversity of vernal pool plant species occur in a complex between two tributaries of Spring Canyon. Vernal pools occur on Otay Mesa throughout much of the Study Corridor. The pools are concentrated on mesa tops near the upper reaches of Spring Canyon, mesa tops near the head of Dennery Canyon, at the west end of the Study Corridor along Otay Mesa Road, and near Brown Field.

Mima Mound Topography

Mima mounds, which occur within the Study Corridor, are defined as one of numerous low circular or oval domes composed of loose, unstratified, gravelly, silty, or sandy material. The basal diameter of these mounds varies from three meters (10 feet) to more than 30 meters (98 feet), and the height from 30 centimeters (one foot) to about two meters (seven feet). The ACOE has a Regional Condition for Nationwide Permit Number 14. This condition allows for impacts

up to a limit of .10 hectare (0.25 acres) of vernal pool/ mima mound complex. According to an ACOE representative, the ACOE will claim jurisdiction over mima mound topographical areas only when they are associated with vernal pool basins (Bruce Henderson, ACOE; interoffice communication; November 1999).

In relation to this proposed ACOE requirement, Caltrans District 11 Biology staff conducted surveys within the Study Corridor to determine the presence of mima mound/ vernal pool complexes. The resulting impact conclusions (discussed in Chapter 4) are based upon these surveys and review of the Biological Technical Report (April, 1999). A Caltrans biologist-created an ArcView GIS overlay of previously mapped vernal pools and associated watersheds, and an aerial photo interpretation. The field surveys were conducted on December 15 and 21, 1999.

Vernal pools of the San Diego area are seasonal wetlands generally associated with mima mound topography, although there are extensive areas of mounded topography where pools are rare or absent entirely. Vernal pools, within the Otay Mesa area, form in clay-rich, slowly permeable soil horizons.

Grasslands

Annual grasslands primarily consist of European grasses and weeds and are characterized by a dense to sparse cover of non-native annual grasses, often associated with numerous species of showy-flowered native annual forbs. Characteristic species in the Study Corridor include oats (*Avena* spp), foxtail chess (*Bromus madritensis* ssp. *rubens*), ripgut grass (*B. diandrus)*, green-stem filaree (*Erodium moschatum*), and mustard (*Brassica* ssp.). Annual grasslands are concentrated in the central portion of the Study Corridor, and likely represent areas that have not been recently disturbed or used for agriculture or grazing.

Wetlands and Waters of the U.S.

Approximately 2.2 hectares (5.5 acres) of disturbed wetlands occur in the Study Corridor. Characteristic species include cocklebur, curly dock (*Rumex crispus*), broom baccharis (*Baccharis sarothroides*) and tamarisk.

The unlined flood channel/streambed community consists of non-vegetated or sparsely vegetated drainages. This community exists in the central portion of the Study Corridor (west of La Media Road), crossing a flat field containing annual grasslands and agriculture. It is likely that this is a drainage ditch for the constructed channel to the west that contains freshwater marsh and riparian scrub. Unlined flood channels/streambeds can sometimes function as wildlife corridors, although the unlined flood channel/streambed in the Study Corridor is highly disturbed and of limited value to wildlife.

Open water, used with regard to DFG (1601) regulated areas, occurs just west of Heritage Road in two areas. Both areas appear artificial, with the northern pond related to an abandoned water treatment facility (currently used as a stormwater detention basin). Open water areas were mapped during the rainy season and are assumed to contain water a large portion of the year. These areas may dry up during the summer and fall, but are likely to only support vegetation that relies on long periods of inundation. Open water is considered a sensitive habitat, as discussed above under disturbed wetlands.

Standing water characterizes those areas that temporarily pond water after the winter rains. The majority of these areas are comprised of tire ruts on dirt roads and did not contain any vegetation indicative of vernal pools.

Additional Habitats

A Eucalyptus plantation occurs in the drainage that runs parallel to the existing Route 905, just west of Otay Mesa Road. In addition, several eucalyptus individuals have been mapped on the north side of Otay Mesa Road. Although eucalyptus trees are present elsewhere in the Study Corridor, they are naturalized and are typically associated with developed areas and some were included within units mapped as developed.

Agricultural areas are those areas that are currently in use or have been recently tilled or harvested. The majority of agricultural land lies south of Otay Mesa Road at the eastern end of the Study Corridor. Encompassing approximately 201.9 hectares (498.8 acres) within the Study Corridor, agricultural areas are the second most common vegetation community.

The disturbed vegetation designation in the Study Corridor includes those areas devoid of vegetation and areas recently cleared of vegetation (e.g., pads for commercial buildings). This designation occurs throughout the Study Corridor, particularly in areas with little or no topography. Disturbed vegetation is the most common category in the Study Corridor, incorporating 324.8 hectares (802.5 acres).

Developed areas include all human structures; paved roads, commercial buildings, residences, landscaped areas, junkyards, Brown Field, and riprap. Developed areas dominate the eastern end of the Study Corridor near the border crossing, the central portion of the Study Corridor adjacent to Brown Field, and the areas associated with I-805 and the I-805/Route 905 interchange. Approximately 231.9 hectares (573.1 acres) of developed land occur within the Study Corridor.

3.8.2 Sensitive Species

Sensitive plant and/or animal species are those which are considered rare, threatened, or endangered within the state or region by local, state, or federal resource conservation agencies. These agencies include the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game /Natural Diversity Database (CDFG), and/or local conservation organizations and biologists. The California Native Plant Society (CNPS) Listing acts as the candidate list for the State of California. Sensitive species can also include California Species of Special Concern. California Species of Special Concern, according to CDFG, are vertebrate species considered vulnerable to extinction due to declining population, limited ranges, and/or continuing threats.

Within the study area, there is a large amount of disturbed land and a history of previous and on-going human disturbance from agriculture and urban development activities. A total of one-third of the identified plant species are non-native. These include a number of disturbance-related upland (e.g., yellow star thistle, *Centaurea melitensis*) and wetland plant species (e.g., tamarisk, *Tamarix*).

Sensitive Plant Species

Sensitive plant species are shown on Figure 4-22, Figure 4-23, and Figure 4-24. A total of approximately 150 plant species were detected in the Study Corridor, with one-third of them

non-native. The coastal sage scrub vegetation community supports the greatest diversity of species, with approximately one-half of all plants observed in this community. A full list of plant species observed within the Study Corridor is included in Appendix D of the Biological Technical Report.

Sensitive plants include those listed by the USFWS (1990), CDFG (1994), and California Native Plant Society (CNPS). The CNPS listing is sanctioned by the CDFG and essentially serves as its list of "candidate" species for state threatened or endangered status. The CNPS includes List 2, List 3, and List 4. List 2 species require mandatory CEQA consideration, and include plants that are rare, threatened, or endangered in California, but common elsewhere. List 3 includes plants which require more information. List 4 includes plants of limited distribution. Plants which are included in both List 3 or 4 are on a watch list for the CNPS and recommend a CEQA evaluation. Appendix F within the Biological Technical Report provides detailed explanations of the CNPS, CDFG, and USFWS designations.

The following 15 sensitive plant species were detected within the Study Corridor: San Diego button-celery, spreading navarretia, Otay mesa mint, Otay tarplant, variegated dudleya (*Dudleya variegata*), cliff spurge (*Euphorbia misera*), Orcutt's bird-beak (*Cordylanthus orcuttianus*), San Diego barrel cactus (*Ferocactus viridescens*), San Diego bur-sage (*Ambrosia chenopodifolia*), little mousetail, ashy spike-moss, San Diego County needle-grass (*Achnatherum diegoense*), San Diego sunflower (*Viguiera laciniata*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), and western dichondra (*Dichondra occidentalis*).

Sensitive Animal Species

Seventeen sensitive animal species were observed during the project surveys (Figure 4-25, Figure 4-26, Figure 4-27 and Figure 4-28): Riverside fairy shrimp, San Diego fairy shrimp, coastal California gnatcatcher, golden eagle (*Aquila chrysaetos*), burrowing owl (*Speotyto cunicularia*), California horned lark (*Eremophila alpestris actia*), Cooper's hawk (*Accipiter cooperii*), loggerhead shrike, northern harrier, orange-throated whiptail, San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), western spadefoot, yellow-breasted chat (*Icteria virens*), black-crowned night heron (*Nycticorax nycticorax*), great egret (*Casmerodius album*), and white-tailed kite (*Elanus leucurus*).

Sensitive animals include those listed by the federal or state resource agencies. A brief description of each of the observed species follows. Appendix F of the Biological Technical Report provides an explanation of the CDFG and USFWS designations. The Riverside fairy shrimp, San Diego fairy shrimp and coastal California gnatcatcher are the only species of those mentioned above that are listed as endangered or threatened by the federal government. The status of all sensitive species is discussed below. Appendix E of the Biological Technical Report contains the full list of animal species observed.

3.8.2.1 Federally Listed Plant Species

The San Diego Button-Celery is federally and state listed as endangered. This species is restricted to vernal pools and marshes. It is found in or near vernal pools in Riverside and San Diego counties, south into northern Baja California, Mexico; it is apparently confined to the Santa Rosa Mesa and the mesas around San Diego. The largest concentration of San Diego button-celery is located in the vernal pool series (J27 Group, pools 55-66) near the corner of La

Media and Airway roads. It is also found in a pool at the head of Spring Canyon (pool 41) and was recorded historically from a pool complex north of Otay Mesa Road and just east of Dennery Canyon (not numbered).

Spreading navarretia is federally listed as threatened. This species occurs within vernal pools and vernal swales. This population is located in two pools (pools 40 and 41) near the corner of Otay Mesa Road and Heritage Road (Otay Corporate Center South).

Otay Mesa mint is federally and state listed as endangered. This species is generally only found in vernal pools. It occurs in southwestern San Diego County and Baja California, Mexico. A large population of this species was detected in three vernal pools in close proximity to the population of Otay tarplant described below (pools 14, 15, and 16; J14 Group). This population is located approximately 0.8 kilometer (0.5 mile) west of Heritage Road and approximately 350 meters (1,200 feet) south of Otay Mesa Road.

Otay tarplant is federally listed as threatened and state listed as endangered. This species occurs only in southern San Diego County and northwestern Baja California, Mexico. Otay Tarplant typically occurs within herbaceous plant communities on slopes and mesas with expansive clay soils at elevations below 91 m (300 feet), including non-native grasslands and fallow agricultural fields where appropriate soils are present. One population, containing at least 700 individuals, was detected adjacent to the Otay Mesa mint population described above (pools 14, 15, and 16; J14 Group).

3.8.2.2 Federally Listed Animal Species

Invertebrates

The Quino checkerspot butterfly is a federally endangered species. Many new Quino habitat localities were discovered during the Spring 2001 survey season in the Otay Mesa area to the east of the Study Area, possibly because of favorable rainfall conditions the previous winter and spring. Within the study area (North and Central Alignment Alternatives), a "single, freshly emerged female" was observed on March 30, 2001 within the OCCS (Mark Dodero, Regional Environmental Consultants, personal comm.). Caltrans became aware of this finding on April 17th. Surveys on April 19 (the closing date of the survey season) and 24, 2001 by Caltrans biologists at this site and nearby habitat within the study area did not locate any additional Quino. Further protocol surveys are planned for Spring 2002

The Riverside Fairy Shrimp is a federally endangered species. These freshwater shrimp occur in vernal pools and other ephemeral pools, and have a limited distribution ranging through Riverside, Orange, Los Angeles, and San Diego counties, and northern Baja California, Mexico. This species was first collected in 1979 and identified as a new species in 1985. Fairy shrimp play an important role in the community ecology of many ephemeral water bodies. They are fed upon by waterfowl and other vertebrates, such as the western spadefoot toad (Scaphiopus hammondi). Within the Study Area, Riverside fairy shrimp have been observed previously in three vernal pools, including two pools on Otay Corporate Center South preserve (pools 40 and 44) and one pool on the mesa between two arms of Spring Canyon (pool 29; J14 Group).

The San Diego Fairy Shrimp is also a federally endangered species with distribution throughout San Diego County, Orange County, and northern Baja California, Mexico. The largest number of vernal pools is found in San Diego County. The San Diego fairy shrimp was first collected in

1962 and identified as a new species in 1993. This species occurs in vernal pools, ditches, and other temporary pools and appears to be somewhat more common than the Riverside fairy shrimp. Within the Study Area, San Diego fairy shrimp were found in 11 vernal pools and 4 pools of standing water. Vernal pools with fairy shrimp included pools 4, 16, 19, 29, 34, 36, 38, 39, 40, and 54, and one unnumbered pool north of Otay Mesa Road and west of Dennery Canyon. The standing water areas where these shrimp occur are primarily tire ruts on dirt roads.

Birds

The coastal California gnatcatcher is a federally threatened species, and is also a California Species of Special Concern. Their preferred habitat is coastal sage scrub, although they are known to also occur in chaparral and riparian habitats. They are distributed within southern Ventura, portions of Los Angeles, Orange, western Riverside, and San Bernardino and San Diego counties south into Baja California, Mexico. Five gnatcatcher pairs were monitored within the Study Corridor. One of these pairs was observed only within a 183-meter (600-foot) buffer zone around the Study Corridor, and did not enter the Study Corridor at any point. Territories were mapped for 4 pairs in the 1994-breeding season and for 5 pairs in the non-breeding season. An additional pair, found in the non-breeding season, appears to have dispersed into the buffer area sometime in late August, as the pair was not observed during earlier repeated surveys. During June and July, four pairs were monitored for breeding indications. During late July, a single nest was found in the eastern tip of Spring Canyon about three feet high in fennel. This nest was parasitized by the brown-headed cowbird and did not produce any offspring. A different pair was observed feeding three fledglings later in July. No other specific evidence of breeding was recorded. During the non-breeding season, two isolated sightings were made of first year individuals. It is unclear whether these individual gnatcatchers were from pairs already monitored. Updated surveys, in accordance with the gnatcatcher protocol, will be conducted prior submittal of the biological assessment.

3.8.2.3 Sensitive Species – No Federal Listing

Plants

Orcutt's Bird's-Beak has a CNPS List 2 designation. This species is generally found in coastal sage scrub, and has limited distribution in extreme southern San Diego County. One population containing approximately 200 individuals was observed in the canyon that runs parallel to existing Route 905 between Otay Mesa Road and I-805.

San Diego Barrel Cactus has a CNPS List 2 designation. This species is restricted to San Diego County and Baja California, Mexico, and generally occurs on dry slopes in coastal sage scrub. This species occurs near the rim of virtually all of the canyons in the Study Corridor in coastal sage scrub habitat and is especially common in all tributaries of Spring Canyon. Individuals were too numerous to quantify.

San Diego Bur-Sage has a CNPS List 2 designation. The species occurs within coastal sage scrub on dry, sunny hillsides. Common distribution of this species is below 180 meters (600 feet) in elevation in southwestern San Diego County, Arizona, and Mexico.

San Diego Sunflower has a CNPS List 2 designation. This species is co-dominant within the southern coastal sage scrub, and generally occurs on dry slopes. This shrub's distribution is from southern coastal areas and foothills of San Diego County and Baja California, Mexico. This

species is quite common throughout the coastal sage scrub habitat in the Study Corridor. In some areas, it occurs as a co-dominant, making individual populations difficult to count and map.

Variegated Dudleya is federally listed as regionally sensitive and occurs within communities of chaparral, cismontane woodland, coastal scrub, valley and foothill grasslands and vernal pools. This species distribution is restricted to southern San Diego County and northwestern Baja California, Mexico. A large population (5,000+ individuals) occurs near the intersection of La Media and Airway roads near the J27 Group vernal pools (pools 55-66).

Cliff Spurge has a federal listing as sensitive. Cliff Spurge typically occurs on rocky soils in coastal sage scrub and coastal bluff scrub. This species coastal range extends from Corona Del Mar to Baja California, Mexico. This species was typically found in coastal sage scrub habitat near the rim of canyons within the study corridor, and is most common on south- and west-facing slopes. The largest population (over 100 individuals) occurs on the north side of Spring Canyon, near the end of Heritage Road. In addition, one population of approximately 20 individuals is located in the northeastern arm of Spring Canyon, while another population, totaling less than 50, is located at the easternmost end of the canyon that runs parallel to existing Route 905, between Otay Mesa Road and I-805.

Little Mousetail has a CNPS List 3 designation and is generally found within vernal pools. Distribution of this species includes vernal pool habitats in coastal San Diego County and elsewhere north to Butte County, California. Within the Study Corridor this species has been observed in one pool just east of Spring Canyon's largest tributary canyon (pool 25; J14 Group).

Ashy Spike-Moss has a CNPS List 4 designation. This species occurs on flat mesas in coastal sage scrub and chaparral. Distribution of this species includes Orange and San Diego counties and northwestern Baja California, Mexico. This species is considered threatened by human development.

San Diego County Needle Grass has a CNPS List 4 designation. This species often occurs in mesic areas in chaparral and coastal sage scrub and on clay slopes. Within the Study Corridor the heaviest concentration of this species was in the canyon that parallels Route 905 between Otay Mesa Road and I-805. Other small populations are found scattered throughout the coastal sage scrub habitat.

Southwestern Spiny Rush has a CNPS List 4 designation. This species occurs within moist, saline or alkaline soils. In San Diego County, this species occurs in drainages and wetland areas from San Marcos south to the Sweetwater Valley. Three individuals occur in the northeastern arm of Spring Canyon. This species is considered threatened by urbanization and flood control.

Western Dichondra has a CNPS List 4 designation. This species generally occurs along dry sandy banks in coastal sage scrub, chaparral, or southern oak woodland, and often proliferates on recently burned slopes. In San Diego County this species occurs north to La Costa and south to the border. Small stands of this species were observed near the rim of several canyons in the southern part of the Study Corridor.

Seventeen additional sensitive plant species have the potential to occur within the Study Corridor (Table 4-2, Biological Technical Report) but were not observed. These species would have been in evidence during the surveys and should have been observed, if present.

Animals

Birds - Raptor Species

Nearly all bird species are protected under the Federal Migratory Bird Treaty Act and pertinent sections of the California Fish and Game Code.

The Golden Eagle is protected under the special Federal Bald Eagle Protection Act, and is also considered a California Species of Special Concern. The golden eagle forages in open habitats (including open shrublands) and nests most often on cliffs, less often in trees. For breeding, it tends to require places of solitude and is usually found away from human habitation. During migration, it may be found in virtually any area. Wintering populations tend to concentrate in rural areas and other open country. During the winter surveys of 1994, adult individuals were observed hunting just west of Heritage Road on two occasions.

The Burrowing Owl is considered a California Species of Special Concern, and is generally restricted to open grasslands, berms in disturbed areas, sparse scrubland, and agricultural areas. The owl uses burrows of the California ground squirrel, prairie dogs, and other mammal burrows for nest sites. During July and August 1994, owls were observed on top of the mesa just west of the canyon next to Heritage Road. Five active burrows were counted and up to seven young owls were observed in addition to varying numbers of adults and/or sub-adults. Due to the complex colonial ecology of burrowing owls, the number of breeding pairs on site could be variable, but the conditions observed favor the possibility for 1 or 2 pairs.

The Cooper's Hawk is a California Species of Special Concern. This species breeds in San Diego County near suitable foraging areas such as scrublands or fields. During the winter and migration periods, it may be found in a variety of habitats, but seems to avoid open plains. Sightings of foraging individuals in coastal sage scrub were frequent during the fall and winter surveys. Study Corridor habitat is inappropriate for breeding.

The Northern Harrier is widespread throughout the temperate regions of North America and Eurasia, but is also considered a California Species of Special Concern. A pair bred successfully in a tributary to Spring Canyon just west of Heritage Road, rearing one young. Several additional sightings of adults and sub-adults were made during past and current surveys in the Study Corridor vicinity, mainly over coastal sage scrub and grassland.

The White-Tailed (Black Shouldered Kite) breeds in the Pacific states and winters into South America. This species is fully protected in California (Fish and Game Code Section 3511). The white-tailed kite is distributed throughout San Diego County. It nests typically in riparian or oak woodlands adjacent to grasslands. Individuals were seen on most of the surveys (an unknown number of individuals). Evidence of breeding was observed in the east end of the Study Corridor.

A red-tailed hawk (*Buteo jamaicensis*) nest was observed in eucalyptus plantation in the western part of the Study Corridor. This nest looked unused at the time of the 1995 surveys, but was active during spring of 1998. Active raptor nests are protected from impact by the federal Migratory Bird Treaty Act. Raptors that breed in the Study Corridor also include burrowing owl, white-tailed kite and northern harrier.

Other Bird Species

The California Horned Lark is a California Species of Special Concern and is typically found in open habitats including disturbed, ruderal, grasslands, agricultural lands and mesa tops. The species distribution includes the coastal slopes and lowlands of California. During fall and winter surveys, individuals were sighted regularly in agricultural fields and open grasslands on top of the mesa. These birds are migrants and winter visitors.

The Loggerhead Shrike is widespread but declining, throughout North America, and is also considered a California Species of Special Concern. In general, shrikes occupy open habitats with scattered trees and/or brush. Individuals were seen on most surveys, in different parts of the Study Corridor. Although no breeding activity was observed, suitable breeding habitat occurs in a few areas.

The Southern California Rufous-Crowned Sparrow is considered a California Species of Special Concern. This species occurs from Santa Barbara to northwestern Baja California, Mexico. Rufous-crowned sparrows tend to be found in coastal sage scrub where it occurs in rocky hillsides and canyons. One individual was observed in the Study Corridor on three separate occasions in a small tributary drainage of Spring Canyon.

The Yellow-Breasted Chat is considered a California Species of Special Concern. This species is primarily restricted to riparian woodland and riparian scrub habitats throughout California. A single individual was heard in the main tributary to Spring Canyon. This individual could have been part of a breeding pair on site.

The Black-Crowned Night Heron is widespread in North America. During fall surveys, migrant individuals were seen in a pond just west of Heritage Road.

The Great Egret occurs in North America and Central America. An individual was seen on two occasions in the pond just west of Heritage Road.

The blue-gray gnatcatcher is a fairly common migrant and winter visitor, rare and localized summer resident. In winter this species visits riparian undergrowth, weedy brush in agricultural areas, thickets in desert washes, and less frequently in chaparral. Wintering birds like the blue-gray gnatcatcher occur in coastal lowlands.

California Species of Special Concern

California Species of Special Concern is a watch list created and maintained by the CDFG. This list/ designation was created in response to declining population levels, limited ranges, and/ or continuing threats to species that have made them vulnerable to extinction. The goal of this designation is to maintain viable populations of all native vertebrate species, and reverse their decline. Not all California Species of Special Concern have declined equally, and the designation of species of special concern presents efforts to address the appropriate issues of concern early enough to secure the species long term viability.

Reptiles

The Orange-Throated Whiptail is considered a California Species of Special Concern. This species generally inhabits sandy substrates in coastal sage scrub, chaparral, edges of riparian

woodlands, and washes. Several individuals were observed during the surveys. Protocol surveys found that areas of whiptail activity were highest along the west-side of Otay Mesa Road in a canyon with eucalyptus trees and in Spring Canyon (especially the upper reaches). They were not seen in any of the intervening canyons or on the mesa-tops.

Mammals

The San Diego Black-Tailed Jackrabbit is considered a California Species of Special Concern. This species ranges from southern Santa Barbara County to Baja California, Mexico. They occur primarily in open habitats including coastal sage scrub, chaparral, grasslands, croplands and open, disturbed areas. Jackrabbits were seen on a daily basis during the surveys. Primary concentrations appear to be in Spring Canyon and the environs.

Amphibians

The Western Spadefoot is considered a California Species of Special Concern. This species occurs from the Central to northwestern Baja California, Mexico. This amphibian occurs on several different substrates, providing correct ecological factors are present. In southern California it may be found primarily in coastal sage scrub, chaparral, and grassland, but the single important component of spadefoot habitats is the presence of temporary pools which form during winter and spring rains. Signs of this species were detected in vernal pools 24, 31, and 50. Spadefoots potentially occur in many other bodies of water in the Study Corridor, including standing water and open water habitats.

Conclusion

The potential exists for at least 23 other sensitive animal species to occur on site, including 2 butterflies, 7 reptiles, 7 birds, and 7 mammals. A full list of these species is provided in the Biological Technical Report, along with their estimated potential for occurrence on site and preferred habitats. For many of the species, focused surveys would be needed for detection, but are not warranted due to the low probability of detection and low level of sensitivity of the individual species. The impact analysis is sufficient to address possible impacts to these species, in the context of their respective habitats. USFWS Protocol Surveys (1997, 1998, 1999 flight seasons) have not found the Quino Checkerspot butterfly within the Study Corridor. A freshly emerged Quino checkerspot butterfly was observed (Mark Dodero, RECON) within areas close to the North and Central Alignment Alternatives in March 2001. Further protocol surveys are planned for the Spring 2002 flight seasons.

3.9 CULTURAL RESOURCES

Initially, a broad study area for the cultural resource studies was established for this project rather than using a specific Area of Potential Effect (APE) because of the number of alignment alternatives being considered. The study area for architectural history included the area bordered by I-805, Enrico Fermi Drive, Otay Mesa Road and Airway Road, except at the southeastern corner of the project, where the study area extended southward to include the proposed alignment alternatives between Airway Road and the Otay Mesa POE. At the western end of the project, which includes existing freeway portions of Route 905 and Interstate 805, the study area was confined to existing Caltrans-owned right-of-way. The study area for archaeology was defined as the proposed right-of-way limits for the various Route 905 Alignment Alternatives.

The ultimate project APE for cultural resources includes both the historic architecture and archaeology study areas.

The body of current research of prehistoric occupation in San Diego County recognizes the existence of at least two major cultural traditions, referred to here as Early Period (Archaic) and Late Prehistoric, based upon general economic trends and material culture. Within San Diego County, the Archaic generally includes the period from 9000 to 1300 years ago, while the Late Prehistoric includes from 1300 years ago to historic contact. The Historic Period covers the time from Spanish contact to present.

In addition to the studies conducted specifically for the current undertaking, other studies have been completed within the APE for private and other public development projects under CEQA, NEPA, City of San Diego, and County of San Diego guidelines. As a result of these studies, the Otay Mesa area has been recorded as being covered with prehistoric cultural material (i.e., sparse lithic scatter) and numerous sites have been previously recorded in the study area and within a one-mile radius of the study area. Other types of sites recorded on Otay Mesa have included larger, more extensive quarry sites, campsites and villages. All relevant Route 905 cultural resource studies are contained in the following technical document (and its attachments) prepared for this undertaking: Historic Property Survey Report.

The previous studies have identified an extensive sparse surface lithic scatter across the mesa, which contributes little to the archaeological record because the data are repetitious and cannot be precisely dated to be placed in context. Based on this information, the State Historic Preservation Officer (SHPO), in a letter dated July 23, 1996, directed Caltrans and the City of San Diego not to test the sparse lithic scatter located within the APE. Instead, fieldwork was to concentrate on the campsites and/or village sites (there are no quarry sites) in the APE, and to prepare an overall management plan for the mesa. This plan was to synthesize previous work on the mesa, develop criteria for identifying the sparse lithic scatter and other site types, provide a discussion of data gaps, and define the future research orientation for the mesa.

A number of archival and field research studies were completed prior to the current environmental document. A literature review, record search, field surveys, and field investigations of the 957 Hectare (2,365-acre) Route 905 Study Corridor were completed between 1995 and 1997. Studies were conducted to evaluate any existing buildings or archaeological sites located within the project area for their potential eligibility to the National Register of Historic Places or the California Register of Historical Resources. At the direction of SHPO, the generalized sparse lithic scatter that covers Otay Mesa was identified as not eligible for the National or California registers and was not tested for this project. Additional sources consulted for information on cultural resources located within the study area, included: National Register of Historic Places (1979, 1989, and supplements since 1989); California Inventory of Historic Resources (1976); California Points of Historical Interest (1992, and supplemental information from the quarterly meetings of the State Historical Resources Commission); and California Historical Landmarks directory (1990, and supplemental information from the quarterly meetings of the State Historical Resources Commission). Information regarding previously recorded cultural resources located within the study area was obtained from the South Coastal Information Center at San Diego State University and from the files housed at the San Diego Museum of Man.

3.10 NOISE

Noise is commonly defined as unwanted sound. Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Since the human ear is not equally sensitive to all sound frequencies within the entire sound spectrum, noise levels are factored more heavily into sound characterizations in a process called "A-weighting" written as dB(A). In this document, all noise levels written as "dB" will be understood to be A-weighted levels, i.e., dB(A). The Federal Highway Administration (FHWA) and Caltrans use a peak one-hour noise measurement (that is the hour with the highest noise level). This noise level is described using a factor called the energy equivalent level (L_{eq}).

The Caltrans Noise Analysis Protocol for residential interiors and residential exteriors are 52 dBA L_{eq}(h) and 67 dBA L_{eq}(h) respectively. A noise impact occurs if levels approach within 1 dBA or exceed the applicable NAC; or if there is a substantial noise increase of 12dBA or more over the existing noise levels. The 67 dBA exterior standard is evaluated during the single noisiest hour of the day. Caltrans policy uses the federal NAC and the Traffic Noise Analysis Protocol for project impact and mitigation analysis during the environmental review process. Local ordinances requires that, for planning purposes, artificial dBA increments be added to quiet time noise levels in the evening and to extra quiet times at night. The 24-hour noise descriptor, used only by local governments, called the Community Noise Equivalent Level (CNEL) is applied at those times.

A survey of the Study Corridor by land use type has identified many different existing uses including residential, commercial, industrial, and manufacturing. Each of the non-residential areas were evaluated as to the nature and extent of outdoor activities. Table 3-4 lists the identified commercial, industrial, and manufacturing land uses and the presence of any outdoor activity areas. Results from the evaluation determined that there are no areas of frequent human use where lowered noise levels would be of benefit. Therefore, according to the noise protocol there are no impacted receivers and no further analysis would be necessary.

Residential land uses are considered to be "sensitive". No other sensitive land uses occur in the study area. However, there are a number of planned schools and conceptual parks for the area. Nine noise monitoring locations adjacent to the proposed project's corridor were identified and selected for detailed study. The existing ambient noise environment consists primarily of noise from local automobile/ truck traffic and air traffic from Brown Field. Extended (24-hour) on-site noise measurements of ambient noise levels, according to the standards described above, were conducted at the nine monitoring sites. Noise monitoring locations are shown on Figure 3-12. Measured peak-hour noise levels were consistently in the mid-60 dBA range throughout the day/early evening and in select areas currently approach the FHWA NAC. Additional short-term (30-minute) monitoring was conducted at six locations during the morning and afternoon peak traffic. The results of the short term monitoring exhibited noise patterns similar to those observed in the 24-hour monitoring.

Table 3-4
COMMERCIAL/ INDUSTRIAL/ MANUFACTURING LAND USES

Address	Company	Outdoor Activity
6930 Camino Maquiladora	4 Commercial / Manufacturing Buildings	No
6935 Camino Maquiladora	Commercial Center	No
6940 Camino Maquiladora	The Box Company	No
6955 Camino Maquiladora	7 Different Companies	No
6960 Camino Maquiladora	CalCam Computer & 4 other businesses	No
6965 Camino Maquiladora	Vacant	No
6975 Camino Maquiladora	Tread Co	No
1605 Pacific Rim Court	6 Commercial / Manufacturing Buildings	No
1657 Pacific Rim Court	NLI mfg	No
1663 Pacific Rim Court	J.E. Pacific Inc	No
1670 Cactus Road	Rivera Yarn	No
1690 Cactus Road	PAC Bell Tel Co	No
7043 Cactus Road	H Baza Farm	No
1703 Cactus Road	Cactus Recycling Center	No
7684 St. Andrews Cove	Coast Commercial/Warehouse	No
7557 St. Andrews Cove	Martin Furniture	No
7685 St. Andrews Cove	Biomedical Co	No
7603 St. Andrews Cove	AXSY Technologies & commercial buildings	No
7919 St. Andrews Cove	Graphite Design	No
1655 St. Andrews Cove	Industrial Automated Brokers, Inc	No
7510 to 7520 Airway Road	Airway Business Center	No
7878 Airway Road	Delimex	No
7880 Airway Road	Empire Center	No
7920 Airway Road	Empire Center	No
7850 Waterville Way	Innovative, Cold Storage Enterprises	Yes*
2055 Waterville Way	Honeywell	Yes*
2055 Dublin Drive	US Assemblies	Yes*
2055 Dublin Drive	Smith Corona Distribution Service	Yes*
7558 Panasonic Way	BCS Produce Company	No
7625 Panasonic Way	Panasonic/Matsushita Electric Corporation of America	No
7664 Panasonic Way	Parkers Seals Company	No
SW Corner of Otay Mesa Road & La Media Road	7-11 Convenience Store	No
1596 Otay Mesa Road	JD Electronic/Industrial Supply	No
1582 Otay Mesa Road	Richard's Van & Storage Inc	No
NE Corner of Otay Mesa Road & La Media Road	Fire Department	No
1422 Radar St	Nu Shoe	No
1625 Heritage Rd	AM/PM Convenient Store	No

* There are picnic tables outside the buildings which are used intermittently and would not be considered area of frequent human use, therefore, lowered noise level would not be of benefit.

3.11 AIR QUALITY

Regulations

The federal Clean Air Act of 1970, amended (42 USC 7401 et seq), was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare and productivity.

In 1971, the EPA developed primary and secondary National Ambient Air Quality Standards (NAAQS). Six pollutants of primary concern were designated: carbon monoxide, ozone, suspended particulate matter, sulfur dioxide, nitrogen dioxide and lead. The primary NAAQS must "protect the public health with an adequate margin of safety" and the secondary standards must "protect the public welfare from known or anticipated adverse effects (aesthetics, crops, architecture, etc,)"(*Federal Clean Air Act* 1990). The primary standards were established, with a margin of safety, considering long-term exposures for the most sensitive groups in the general population. The EPA allows states the option to develop different (stricter) standards. California elected this option and adopted more stringent standards. Table 3-5 at the end of this chapter shows the Federal and State standards

Progress has been made in the San Diego Air Basin in attaining federal and state air quality standards. Federal and state standards have been met for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide. Federal standards are being met for inhalable particulates labeled as PM-10 (particulates 10 microns or smaller in size). State standards for PM-10 have not been met and the possible addition of a PM-2.5 standard may change the air basin's federal status as it relates to inhalable particulates.

If an air basin is not in federal attainment (e.g. does not meet federal standards) for a particular pollutant, the basin is classified as marginal, moderate, serious, severe, or extreme non-attainment areas. Non-attainment areas must take steps towards attainment by a specific timeline. These steps include establishing a transportation control program and clean-fuel vehicle program, decreasing the emissions threshold for considering a new stationary source, a major source and increasing the stationary source emission offset ratio to at least 1.3:1 (*Federal Clean Air Act*, 1990). The San Diego Air Basin (SDAB) is a serious non-attainment area for the federal and state ozone standards. The SDAB meets the standards for other pollutants, including carbon monoxide, which is a primary pollutant emitted from vehicles.

The California Clean Air Act required that air pollution control districts implement regulations to reduce emissions from mobile sources through the adoption and enforcement of transportation control measures. All areas must meet California Ambient Air Quality Standards (CAAQS) by the earliest practical date, and at a minimum, air quality plans as a whole must meet an annual emission reduction target of five percent or apply all feasible control measures (County of San Diego, 1992).

The State Implementation Plan (SIP) is the document, which sets forth the state's strategies for achieving air quality standards. The San Diego Air Pollution Control District (APCD) monitors air quality throughout the county, adopts rules, regulations and programs to attain state and federal air quality standards, and appropriates money to achieve these objectives. The SIP portion applicable to the San Diego Air Basin is called the Regional Air Quality Strategies. During the SIP planning process the SDAB determined that the federal ozone standard could be met by the year 1999, without the creation of any new control programs. This determination

resulted in the EPA approval of a reclassification of the SDAB from severe to serious. All progress towards attainment, including offsetting the effects of growth, was expected to derive from existing local, state and federal rules and regulations. Pollution transported from the Los Angeles region has prevented the San Diego region from having three consecutive clean years, the number required to have attained the standard by the 1999 date. Therefore, the projected attainment year of 1999 was not met. There were no exceedances of the federal one-hour ozone standard at any San Diego site in 2000. On February 7, 2001 The Air Resources Board applied to the U.S. Environmental Protection Agency (EPA) for a second one-year extension of the federal one-hour ozone standard attainment date for the San Diego non-attainment area. The first one-year extension was granted to November 15, 2000. San Diego could attain the standard and be eligible for redesignation to attainment if there are three or fewer exceedances in 2001.

Regional Air Quality

Air quality is commonly expressed as the number of days on which air pollution levels exceed state standards set by the California Air Resources Board (CARB) and federal standards set by the EPA. Of the nine monitoring stations maintained by the San Diego APCD and CARB, the nearest station to the project study area is at the Otay Mesa POE. Air quality as a particular location is a function of the type and amount of pollutants being emitted into the air locally, throughout the basin, and of the dispersal rates of pollutants within the region. The major factors affecting pollutant dispersion are wind speed and direction, inversion layers (which affect vertical dispersion), and the local topography.

3.12 HAZARDOUS MATERIALS

A general assessment as well as specific surveys were conducted for the evaluation of documented and observed hazardous materials sites. A total of 57 known hazardous material sites within the Study Corridor were identified (Figure 4-33, Figure 4-34, Figure 4-35 and Figure 4-36). Generators or users of hazardous materials and surface debris comprise 55 of the 57 identified sites. These sites represent minimal constraint to construction. However, there are two sites of particular concern, which would be impacted by all of the proposed build alternatives. One of these sites is the Tripp Landfill, an unpermitted hazardous waste site. Chapter 4, Section 4.12, provides detailed discussion of the potential impacts, agency coordination and remediation efforts proposed for the Tripp Landfill. The other site is Cactus Recycling, located across Cactus Road and northeast of the Tripp Landfill. This facility has a history of storing and otherwise handling potentially hazardous materials, including agricultural chemicals, metals, and other recycled materials. A site investigation was performed at this location and it was determined that the soils will need to stay in place as to not be considered a hazardous materials impact.

Table 3-5
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O_3)	1Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	0.12 ppm (235 µg/m^3)	Same as Primary Standard	Ethylene Chemiluminescence
	8 Hour	--	Ultraviolet Photometry	0.08 ppm (157 µg/m^3)	Same as Primary Standard	Ethylene Chemiluminescence
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	30 µg/m^3	Size Selective Inlet Sampler ARB Method P (8/22/85)	--	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	24 Hour	50 µg/m^3	Size Selective Inlet Sampler ARB Method P (8/22/85)	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	Annual Arithmetric Mean	--	Size Selective Inlet Sampler ARB Method P (8/22/85)	50 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	No Separate State Standard	65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	Annual Arithmetric Mean	No Separate State Standard	No Separate State Standard	15 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)	Non-dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	None	Non-dispersive Infrared Photometry (NDIR)
Nitrogen Dioxide (NO_2)	Annual Arithmetric Mean	--	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m^3)	Gas Phase Chemiluminescence	--	Same as Primary Standard	Gas Phase Chemiluminescence
Lead	30 days Average	1.5 µg/m^3	AIHL Method 54 (12/74) Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--	--	1.5 µg/m^3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Sulfur Dioxide (SO_2)	Annual Arithmetric Mean	--	Fluorescence	0.030 ppm (80 µg/m^3)	--	Pararosoaniline
	24 Hour	0.04 ppm (105 µg/m^3)	Fluorescence	0.14 ppm (365 µg/m^3)	--	Pararosoaniline
	3 Hour	--	Fluorescence	--	0.5 ppm (1300 µg/m^3)	Pararosoaniline
	1 Hour	0.25 ppm 655 µg/m^3	Fluorescence	--	--	Pararosoaniline
Visibility Reducing Particles	8 Hour (10 a.m.-6 p.m.) PST	ARB Method V (8/18/89)	ARB Method V (8/18/89)	No Federal Standard	No Federal Standard	No Federal Standard
Sulfates	24 Hour	25 µg/m^3	Turbidimetric Barium Sulfate-AIHL Method 61 (2/76)	No Federal Standard	No Federal Standard	No Federal Standard
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Cadmium Hydroxide STRactan	No Federal Standards	No Federal Standards	No Federal Standards

Source: California Air Resources Board (1/25/99)